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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,895	02/21/2002	Gereon Vogtmeier	DE010037	3932

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS  
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BRIARCLIFF MANOR, NY 10510

EXAMINER

PATEL, SHEFALI D

ART UNIT	PAPER NUMBER
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2621

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/081,895

Applicant(s)

VOGTMEIER ET AL.

Examiner

Shefali D. Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 December 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 31 October 2005 has been entered.

### *Response to Amendment*

2. The RCE was filed on 9 December 2005.
3. Claims 1 and 3-13 are still pending in this application.
4. Claim objection to claims 10 and 12 have been overcome and withdrawn. However, there are other minor claim objections (see below for detail).
5. 35 USC 112 2<sup>nd</sup> paragraph rejection made to claim 1 has been withdrawn.
6. 35 USC 113 2<sup>nd</sup> paragraph rejection made to claim 7 still stands.

### *Response to Arguments*

7. Applicants' arguments filed on 31 October 2005 (Remarks, pages 5-7) have been fully considered but they are not persuasive. Applicants argue starting at bottom of page 5 stating, "Marshall discloses sensing a proportional and not a full or substantially full temperature of the entire radiation sensor chip. Accordingly, it is respectfully submitted that amended claim 1 is not taught or suggested by the patent of Marshall et al, either along or in combination with the cited references of Shih et al, Nagumo or Gordon."

The examiner respectfully disagrees.

Marshall et al. discloses uniform temperature distribution so that temperature sensed by said temperature sensor directly and substantially fully corresponds to the temperature of the entire radiation sensor chip enabling direct and accurate determination of the temperature at the radiation sensor. Please note that at

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col. 6 lines 50-54, the temperature sensor is coupled with (integrated on) the processing circuitry 108 and the radiation sensor array 102. This temperature sensor yields the temperature of *the radiation sensor that is proportional* (i.e., accurate and direct) *to a temperature of the radiation sensor array 102* as disclosed by Marshall et al. at col. 6 lines 61-64. Also, the specification on page 2 lines 16-24 does not state that “the temperature sensor directly and substantially fully corresponds to the temperature of the entire radiation sensor chip...” The “directly and substantially fully” is met by Marshall et al. as discussed above.

### *Claim Objections*

8. Claims 7 and 12-13 is objected to because of the following informalities:
- a.* Claims 7 and 12-13 line 1 recites “claim1”. This ought to be “claim 1”. Note, there is not space between claim and 1.

### *Claim Rejections - 35 USC § 112*

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:
- The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
10. Claims 7-9 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
11. Regarding claim 7 line 2, the phrase “such as” renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Dependent claims 8-9 are rejected for the same reason as claim 7.

### *Claim Rejections - 35 USC § 102*

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for

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patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claims 1, 3 and 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Marshall et al. (hereinafter, "Marshall") (US 6,515,285).

With regard to **claim 1** Marshall discloses a radiation sensor (10) (sensor array 102 in Fig. 1A and at col. 6 line 64; the detector is also described in Figure 12, col. 21) of an integrated type which is provided with at least one light-sensitive and/or X-ray-sensitive sensor element (11) (the sensory array has sensor elements set in rows/columns) whose output signal indicates the amount of radiation absorbed by the sensor element (col. 22 lines 31-37), and with at least one temperature sensor (12, 12a, 12b) whose output signal indicates the temperature prevailing at the temperature sensor (see the temperature sensor 325 in Fig. 1A, col. 6 line 62 and col. 7 lines 1-5) and also with at least one further sensor element (12) which is sensitive to a physical quantity other than that where to the light-sensitive and/or X-ray-sensitive sensor element (11) is sensitive, all sensor elements (11, 12) delivering similar output signals and being connectable to an evaluation unit (13) as similar components (Marshall teaches the sensor elements deliver similar output and connected to a unit as seen in Fig. 1A. See, also Fig. 1D the controller and processor at 114 and 108, respectively) wherein said temperature sensor is integrated on a chip of said radiation sensor, said chip having a substantially uniform temperature distribution so that temperature sensed by said temperature sensor directly and substantially fully corresponds to the temperature of the entire radiation sensor chip enabling direct and accurate determination of the temperature at the radiation sensor (As disclosed at col. 6 lines 50-54, the temperature sensor is coupled with (integrated on) the processing circuitry 108 and the radiation sensor array 102. This temperature sensor yields the temperature of the radiation sensor that is proportional (i.e., accurate and direct) to a temperature of the radiation sensor array 102 as disclosed by Marshall at col. 6 lines 61-64).

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With regard to **claim 3** Marshall disclosed that the sensor elements are arranged in the form of a matrix (the radiation sensor array 102 in Marshall is in the form of matrix (i.e., columns/rows), see col. 12 lines 7-26).

**Claim 10** recites identical features as claim 1 except claim 10 is an apparatus claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 10.

With regard to **claim 11** Marshall discloses evaluation unit which does not differentiate whether it reads from a one of said output signals of said sensor elements such as light sensitive and/or x-ray sensitive element or an output signal from said further sensitive element (See Figure 2 and 3 which describes Figure 1 in more details of the processor 102 and 108, respectively.)

With regard to **claim 12** Marshall discloses address from output signals that is read by evaluation unit as seen in Figure 2 and 3, col. 12 lines 7-60.

***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall et al. (hereinafter, "Marshall") (US 6,515,285) in view of Shih et al. (hereinafter, "Shih") (US 6,297,671).

With regard to **claim 4** Marshall discloses a radiation sensor along with temperature sensor(s) as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference. Marshall does not expressly disclose a radiation sensor, in that it is provided with a temperature sensor (12a, 12b) which includes a current mirror with two paths (T3-T5, T4-T4), a respective bipolar transistor (T1, T2) being provided in each of the two paths, the base of said bipolar transistor being short-circuited

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to the collector, the surface areas of said bipolar transistors being different and the current (I) in the current paths being approximately proportional to the temperature of the bipolar transistors.

Shih discloses (Figure 2) a current mirror with two paths (T3-T5, T4-T6) (Shih: 201-203, 205-207), a respective bipolar transistor (T1, T2) (Shih: 215, 217) being provided in each of the two paths, the base of said bipolar transistor being short-circuited to the collector (the collector in Shih's Figure 2 is not labeled but is represented by a GND symbol beneath the bipolar transistors 215 and 217 connecting them), the surface areas of said bipolar transistors being different (see, col. 3 lines 36-41 for surface area that are multiple of 1 and 8 of the bipolar transistors 215 and 217) and the current (I) in the current paths being approximately proportional to the temperature of the bipolar transistors (see, col. 3 lines 41-55).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Shih with Marshall. The motivation for doing so is to produce stable reference voltages VBNDREF and VBIAS based on physical properties of a PN junction of a bipolar transistor as suggested by Shih at col. 2 lines 55-58. Therefore, it would have been obvious to combine Shih with Marshall to obtain the invention as specified in claim 4.

16. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall et al. (hereinafter, "Marshall") (US 6,515,285) in view of Shih et al. (hereinafter, "Shih") (US 6,297,671) as applied to claims 4 above, and further in view of Kato (US 5,557,194).

With regard to claim 5 Marshall discloses a radiation sensor as disclosed above in claim 4 and the arguments are not repeated herein, but are incorporated by reference. Neither Marshall nor Shih expressly disclose a sensor characterized in that the current (I) in the current paths is coupled out as an output current (Out) via a further current mirror (T7). Kato discloses this as seen in Fig. 2. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Marshall, Shih and Kato. The motivation for doing so is to have the reference current that has a

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positive temperature coefficient and therefore, is increased when the temperature rises. Therefore, it would have been obvious to combine Marshall, Shih and Kato to obtain the invention as specified in claim 5.

17. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall et al. (hereinafter, "Marshall") (US 6,515,285) in view of Shih et al. (hereinafter, "Shih") (US 6,297,671) as applied to claims 4 above, and further in view of Nagumo (US 6,028,472).

With regard to **claim 6** Marshall discloses a radiation sensor as disclosed above in claim 4 and the arguments are not repeated herein, but are incorporated by reference. Note, Marshall discloses radiation sensor being part of a radiation detector (at col. 21 lines 55-67 where the detector is disclosed with reference to the processing circuitry 108 as seen in Figure 1A and 12). Neither Marshall nor Shih expressly disclose a sensor characterized in that the difference between the emitter-base voltages of the bipolar transistors (T1, T2) is determined by a coupling out circuit (A) so as to be delivered as an output voltage (Vout). Nagumo discloses this as seen in Fig. 33 and col. 24 lines 16-45. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Marshall, Shih and Nagumo. The motivation for doing so is to determine the difference between the bipolar transistors. Therefore, it would have been obvious to combine Marshall, Shih and Nagumo to obtain the invention as specified in claim 6.

18. Claims 7-9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marshall et al. (hereinafter, "Marshall") (US 6,515,285) in view of Gordon et al. (hereinafter, "Gordon") (US 6,256,404).

With regard to **claim 7** Marshall discloses a radiation sensor along with temperature sensor(s) as disclosed above in claim 1 and the arguments are not repeated herein, but are incorporated by reference.



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Marshall does not expressly disclose a radiation sensor for a computer tomography (CT). Gordon discloses a radiation sensor for performing CT scans at col. 9 lines 27-28, 41-43; col. 11 line 61 to col. 12 line 26. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Gordon with Marshall. The motivation for doing so is to provide an object's atomic number and density as disclosed at col.9 lines 63 to col. 10 lines 1-3. Therefore, it would have been obvious to combine Gordon with Marshall to obtain the invention as specified in claim 7.

With regard to **claim 8** Marshall discloses the arrangement in order to correct the output signal of the array at col. 12 lines 38-47.

With regard to **claim 9** Marshall discloses making a diagnosis concerning faults and/or ageing of the radiation sensor (col. 12 lines 49-59).

With regard to **claim 13** Gordon discloses providing a diagnosis of an operating condition of said radiation sensor based on a measured temperature condition at col. 12 line 66 to col. 13 lines 1-8.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D. Patel whose telephone number is 571-272-7396. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shefali D Patel  
Examiner  
Art Unit 2621

28 February 2006



JINGGEWU  
PRIMARY EXAMINER